

Validity and Reliability of Indonesian Languages Version of Zung Anxiety Self-Assessment Scale Questionnaire for Pulmonary Tuberculosis Patients

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Abstract

Background: Patients with chronic disease, including tuberculosis, often get anxiety in their daily life. Valid and reliable instrument needed to detect anxiety in Tuberculosis patients in Indonesia. Therefore, Zung Anxiety Self-Assessment Scale questionnaire in the Indonesian language version should be validated and proved as a reliable instrument.

Objective: The purpose of this research is to validate and to get the scientific evidence of reliability on Indonesian language version of Zung Anxiety Self-Assessment Scale questionnaire.

Methods: The design of this study is cross sectional. Zung Anxiety Self-Assessment Scale questionnaires that have been translated to Indonesian language are given and filled by 129 pulmonary tuberculosis patients. We used Corrected Item-Total Correlation table for validity test and Cronbach's Alpha value for reliability test.

Results: Almost all of the questions (19 questions) are valid because Corrected Item-Total Correlation values for all the questions are more than r table ($>0,174$). One question, question number 17, is not valid and was deleted because had negative r value. The questionnaire is also reliable with r Alpha value (Cronbach's Alpha) 0,892.

Conclusion: Indonesian language version of Zung Anxiety Self-Assessment Scale questionnaires is a valid and reliable instrument to be used for detecting anxiety in adult pulmonary tuberculosis patients.

Keywords : *Validity, Reliability, Anxiety, Pulmonary Tuberculosis.*

Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium Tuberculosis* which most often attacks the lungs. This disease can be treated and can be prevented.¹ Furthermore, Tuberculosis is also a contagious lung infection which is still a health problem in the world, especially in developing countries.²

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According to World Health Organization (WHO), TB is a disease that occurs throughout the world. In 2018, TB cases were most prevalent in Southeast Asia with 44% new cases, followed by African countries with 24% new cases and West Pacific 18%. 87% of new TB cases occur in 30 countries with high number of TB cases. Eight countries accounted for two-thirds of new TB cases including India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa.¹ In Indonesia, the number of new cases was 420,994 cases in 2017.³ The number of deaths due to TB has reached 1,8 million in 2018.¹

Besides that, MDR TB cases from year to year are estimated to continue to increase. Multidrug-resistant tuberculosis (MDR-TB) caused by bacteria that are not responsive to isoniazid and rifampicin, the two most powerful first-line anti-TB drugs. In 2018, MDR-TB remains a public health crisis. WHO estimates that there are 484,000 new cases with resistance to rifampicin - the most effective first-line drugs - 78% of them have MDR-TB. Multi Drug Resistant (MDR-TB) is the biggest problem in the prevention and eradication of TB worldwide. Indonesia is ranked 8th out of 27 countries with the most MDR-TB in the world.⁶

Walker, et al. mentioned the high prevalence of mental disorders among individuals diagnosed with physical illness. This is related to worse mortality and morbidity, medication adherence, health care and quality of life.⁴ Anxiety is one aspect that affects quality of life. Quality of life according to WHO is a person's perception in the context of culture and norms in accordance with the person's place of life related to goals, expectations, standards and care throughout his life.⁵ Some social problems that are often the main concern of MDR-TB patients include: social stigma and discrimination; fear and guilt associated with serious risk infections, socio-economic and psychological burdens due to suffering from chronic life-threatening illnesses, increased dependence on others, some treatment failures and being told at health centers that there are no more therapies available, loss of family members and poverty.⁷

Research in the United Kingdom found that there are 30-34% of TB patients with mental disorders. Research in New York noted that there are 20-50% of TB patients who do not comply with medication because

they have psychological problems. Whereas the research by Tuahta (2006-2007) in TB patients showed that the majority of psychiatric disorders were depression by 58.3%, dystymia by 8.3% and general anxiety disorders by 8.3%.⁸

A valid and reliable instrument is needed to detect anxiety in TB patients in Indonesia. Thus, the language used in questionnaire should be in accordance with Indonesian culture and mother tongue, that it can be better understood. Therefore, the Zung Anxiety Self-Assessment Scale questionnaire should be translated into Indonesian language and the Indonesian language version must be validated and proved as a reliable instrument.⁹

Materials and Methods

This study was approved by Pelita Harapan University Ethical Committee. The design of this study is cross sectional by giving . Zung Anxiety Self-Assessment Scale questionnaires that have been translated to Indonesian language to pulmonary tuberculosis patients. Zung Anxiety Self-Assessment Scale questionnaires was translated from original English version to Indonesian language version by one psychiatrist and one clinical psychologist. After being translated from English version, the Indonesian language version was reviewed by one medical doctor with master degree of psychology. The Indonesian language version that has been reviewed then was given to Cultural and Science Faculty of Universitas Indonesia (Lembaga Bahasa Internasional Fakultas Ilmu Pengetahuan Budaya Universitas Indonesia) to be back translated to English version. The result from back translate process was reviewed once again and compared with the original English version to make sure that the back translate version has the same meaning as the original English version. After the reviewer stated that the back translate version has the same meaning as the original English version, the Indonesian language version was given to the pulmonary tuberculosis patients to be tested for validity and reliability.

Participants included in the validity and reliability test for the Indonesian language version of Zung Anxiety Self-Assessment Scale questionnaires were 129 patients with pulmonary tuberculosis that were treated as outpatient in Siloam General Hospitals Lippo Karawaci,

Puskesmas Kutai and Puskesmas Curug from March to April 2018. The sampling method used was consecutive sampling. Every patient came to the outpatient department was included until we got 129 patients. Informed consents were given and Indonesian version of Zung Anxiety Self-Assessment Scale questionnaires were filled by patients that have agreed to be participated in this study after they were explained about how to fill the questionnaire.

Inclusion criteria for the patients included in this study are 17 – 66 years old male or female patients with lung tuberculosis who stay in Tangerang and are receiving Tuberculosis drugs regiment therapy. Exclusion criteria in this study are male or female patients who did not agree to participate in this study, and also pregnant female patients. Other data collected from the patients were gender, age, weight, height,

educational status, and marital status. All data collected by interviewing the patients.

The data were then analyzed using Statistical Package for the Social Sciences (SPSS) version 23. Numeric variable of characteristics of the population were presented as mean and standard deviation, meanwhile categoric variable of characteristics of the population were presented as percentage. Validity test was done to assess the construct validation. Each question will be declared as a valid question if the corrected item-total correlation value is higher than r table value, so that the validity test result was presented as Corrected Item-Total Correlation table. For reliability test, the internal consistency was evaluated using Cronbach’s Alpha value. The internal consistency will be considered as internally consistent if the Cronbach’s Alpha value is 0.7 or higher, so that the result was presented as Cronbach’s Alpha value.^{10,11}

Results

A. Characteristics of Population

Table 1. Characteristics of The Patients.

		Mean + Standard Deviation (years)
Age		47.73 + 8.50
		Number of patients (%)
Sex	Male	89 (69)
	Female	40 (31)
Marital Status	Single	8 (6,2)
	Married	121 (93,8)
	Widower	0 (0)
Education	Elementary School	62 (48,1)
	Junior High School	24 (18,6)
	Senior High School	22 (17,1)
	Diploma	10 (7,8)
	Bachelor	11 (8,5)

From Table.1, we can see that the average age of the population in this research is 47.73 ± 8.50 years old. Almost all have married (93,8%). Most of them are male pulmonary tuberculosis patients (69%), and only graduated from elementary school (48,1%).

B. Validity Test Result in Patients with Pulmonary Tuberculosis

Table 2. Corrected Item-Total Correlation of Each Questions in Patients with Pulmonary Tuberculosis

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
P1	.702	.868
P2	.665	.868
P3	.594	.871
P4	.691	.867
P5	.397	.876
P6	.437	.875
P7	.590	.870
P8	.650	.869
P9	.569	.871
P10	.703	.867
P11	.646	.868
P12	.508	.873
P13	.445	.875
P14	.187	.883
P15	.440	.875
P16	.320	.879
P17	-.071	.892
P18	.540	.872
P19	.465	.874
P20	.376	.877

Validity test was done with significance level $\alpha=5\%$. From r table we can find that r table value with significance level (alpha) 5% and degrees of freedom (df) 127 (n-2) is 0,174. Table 2 second column shows the Corrected Item-Total Correlation values for every question. We can see that almost all Corrected Item-

Total Correlation values are more than 0,174 except question number 17 (P17). The Cronbach's Alpha is 0,879. Question number 17 has negative Corrected Item-Total Correlation values and the Cronbach's Alpha if Item Deleted highly increased from 0,879 to 0,892. We should delete question number 17. We can see the result after we delete question number 17 in table 3 below.

Table 3. Corrected Item-Total Correlation of Each Questions in Patients with Pulmonary Tuberculosis

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
P1	.666	.883
P2	.651	.883
P3	.579	.885
P4	.694	.881
P5	.388	.891
P6	.457	.889
P7	.620	.883
P8	.634	.883
P9	.574	.885
P10	.701	.881
P11	.639	.883
P12	.502	.887
P13	.461	.889
P14	.227	.895
P15	.443	.889
P16	.344	.892
P18	.548	.886
P19	.457	.889
P20	.378	.891

We can see in table 3 that almost all Corrected Item-Total Correlation values are more than 0,174.

C. Reliability Test Result in Patients with Pulmonary Tuberculosis

Table 3. Cronbach Alpha Value in Patients with Pulmonary Tuberculosis

Cronbach's Alpha	N of Items
.892	19

Table 2 shows the r Alpha value (Cronbach's Alpha) is 0,892. This value is higher than 0.7 (>0.7).

Discussion

Tuberculosis is still a global health problem, including in Indonesia. The high prevalence of TB in Indonesia, causing some TB patients easily experience anxiety. Anxiety is one of the psychological responses that the patient feels in dealing with his illness.¹² Anxiety in TB patients is related to a feeling of excessive worry about the disease. Patients diagnosed with TB will experience anxiety and fear in themselves which can include fear of treatment, death, side effects of drugs, transmitting the disease to others, losing their jobs, being rejected and discriminated.¹³

Anxiety in these TB patients should be diagnosed as early as possible. Zung Self-Rating Anxiety Scale questionnaire is one of the questionnaires that can be used to detect anxiety in TB patients, but this questionnaire is only available in English. Thus, the language used in questionnaire should be in accordance with Indonesian culture and mother tongue, that it can be better understood.¹⁴ so this questionnaire cannot be used for them. Therefore, the Zung Self-Rating Anxiety Scale questionnaire must be translated into Indonesian and also be assessed for its validity and reliability so this questionnaire can be used by the wider community. The validity and reliability test of the Zung Self-Rating Anxiety Scale questionnaire was obtained by testing this translated questionnaire for 100 pulmonary TB patients.

Based on the results of this study, it can be seen that the average age of patients is 47.73 ± 8.50 years. This is consistent with data from the Ministry of Health which states the prevalence of pulmonary TB patients is above the age of 15 years.¹ This is also in line with the study of Hendrawati et al in 2018 which states there is a relationship between age and anxiety levels. This happens because of lack of attention from their closest people. Age is one of the internal factors that contribute

to the emergence of anxiety in the elderly.¹⁶

Based on data from this study, 121 patients (93.8%) were married and only 6.2% were single. Other studies indicate that 61% of patients with TB are married people.¹⁷ Research conducted in Surabaya showed 66.67% of patients with pulmonary TB were married.¹⁸ This showed that most pulmonary TB patients were married.

This study also showed that 89 patients were male. Data from WHO in 2018 states that men have a three times greater risk of becoming infected with pulmonary TB compared to women.¹⁵ This is in line with research by Sartika et al. that showed the majority of patients with pulmonary TB were 40 people (53.3%) male sex and 35 women (46.7%).¹⁵ However, it was different from Hendrawati, et al who mentioned that TB patients who experience anxiety are mostly women.¹⁶ Women tend to be more prone to anxiety than men. This is because women are more sensitive to problems, so women's coping mechanisms are less good than men.¹⁵

Many of the TB patients are elementary school graduates (48.1%), 24% are junior high school graduates, 22% are high school graduates, 11% are Diploma, and as much as 8.5% are undergraduate. Other studies have shown that low levels of education are a risk factor for pulmonary TB. According to research from Priyatin (2007), there is a strong and significant relationship between education and anxiety. The higher a person's level of education, the less they experience severe anxiety because the more knowledge they have. Otherwise, lack of education will hamper the development of one's attitude towards newly introduced values to deal with a problem.¹⁰

The total correlation value for each question in this study was more than 0.174 except question number 17. And the R Alpha value for the Zung Self-Rating Anxiety Scale questionnaire was 0.879. For question number 17, because the correlation value is less than 0.174, then it must be removed from the question column, and must be repeated for the correlation test. After question number 17 was deleted, the total correlation value on all questions in this study was more than 0.174. This means that the Zung Self-Rating Anxiety Scale questionnaire has good reliability and can be used generally by the wider community.

The limitation of this research are 1) in this research the translated Zung Self-Rating Anxiety Scale questionnaire only tested in 100 pulmonary tuberculosis patients, so that the adequacy of the sample can be ranked as poor, 2) there was a possibility that the unhealthy patients were too lazy to answer the questions seriously too weak to concentrate, although this possibility had been reduced by giving them informed consent and slowly detailed explanation about how to fill the questions before they started to fill the questionnaire, 3) the questionnaires were given to the patients and filled in the busy and noisy outpatient departments that can distract patient's concentration in understanding the real meaning of the questions.

Conclusion

The translated Indonesian version Zung Anxiety Self-Assessment Scale questionnaires is a valid and reliable instrument to detect anxiety in adult pulmonary TB patients with different educational status.

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